Re-mapping the keyboard

|  |
| --- |
| sudo nano /etc/default/keyboard |
| Change to XKBLAYOUT=”us” |

Reset password

|  |
| --- |
| sudo passwd pi |
| sudo passwd root |

Update and install raspi camera

|  |
| --- |
| sudo apt-get update |
| sudo apt-get upgrade –y -y |
| sudo apt-get install git-core -y |
| sudo wget http://goo.gl/1BOfJ -O /usr/bin/rpi-update |
| sudo chmod +x /usr/bin/rpi-update |
| sudo rpi-update -y |
| |  | | --- | | sudo nano /boot/config.txt (add these line) | | gpu\_mem=128  start\_file=start\_x.elf  fixup\_file=fixup\_x.dat | |

Network Configuration

|  |
| --- |
| sudo nano /etc/network/interfaces |
| auto lo iface lo inet loopback   #auto eth0 #allow-hotplug eth0 iface eth0 inet static  address 192.168.1.111 netmask 255.255.255.0 network 192.168.1.0 broadcast 192.168.1.255 gateway 192.168.1.1  auto wlan0 allow-hotplug wlan0 iface wlan0 inet manual  wpa-roam /etc/wpa\_supplicant/wpa\_supplicant.conf wpa-ssid "Duy Vo" psk "nguyenduy1992"  iface home inet static address 192.168.1.111 netmask 255.255.255.0 gateway 192.168.1.1 network 192.168.1.0 broadcast 192.168.1.255  iface default inet dhcp |
| sudo nano /etc/wpa\_supplicant/wpa\_supplicant.conf |
| ctrl\_interface=DIR=/var/run/wpa\_supplicant GROUP=netdev update\_config=1  network={ ssid="Duy Vo"  scan\_ssid=1  # Protocol type can be: RSN (for WP2) and WPA (for WPA1) proto=RSN WPA  # Key management type can be: WPA-PSK or WPA-EAP (Pre-Shared or Enterprise) key\_mgmt=WPA-PSK  # Pairwise can be CCMP or TKIP (for WPA2 or WPA1) pairwise=CCMP TKIP  group=CCMP TKIP  psk="nguyenduy1992"  id\_str="home"  priority=5 } |

Install Cmake

|  |
| --- |
| sudo apt-get install cmake -y |

Install Client Server

|  |
| --- |
| sudo apt-get install lighttpd -y |
| the "web root" for lighttpd is /var/www. |

MJPG-Streamer

Prepare library to build MJPG Streamer

|  |
| --- |
| sudo apt-get install libjpeg8-dev imagemagick libv4l-dev -y |
| sudo apt-get install libjpeg62-dev -y |

The videodev.h header file that MJPG-Streamer needs has been replaced with a videodev2.h. To make MJPG-Streamer happy you have to create a symbolic link:

|  |
| --- |
| sudo ln -s /usr/include/linux/videodev2.h /usr/include/linux/videodev.h |

Go to folder "mjpg-streamer-master/mjpg-streamer-experimental"

|  |
| --- |
| cd /home/pi/Setup/mjpg-streamer-master/mjpg-streamer-experimental/ |

Build code

|  |
| --- |
| make clean all |

TO START THE CAMERA & TO START STREAMING

|  |
| --- |
| export LD\_LIBRARY\_PATH=/home/pi/Setup/mjpg-streamer-master/mjpg-streamer-experimental/ && /home/pi/Setup/mjpg-streamer-master/mjpg-streamer-experimental/mjpg\_streamer -o "/home/pi/Setup/mjpg-streamer-master/mjpg-streamer-experimental/output\_http.so -w /home/pi/Setup/mjpg-streamer-master/mjpg-streamer-experimental/www" -i "input\_raspicam.so -fps 15 -x 320 -y 240 -vf –hf -quality 10" |

Wifi Access Point

Install hostapd & dnsmasq

|  |
| --- |
| sudo apt-get install hostapd && sudo apt-get install dnsmasq |

|  |
| --- |
| sudo nano /etc/default/hostapd |
| Uncommand and add:   |  | | --- | | DAEMON\_CONF="/etc/hostapd/hostapd.conf" | |

|  |
| --- |
| sudo nano /etc/hostapd/hostapd.conf |
| Add:   |  | | --- | | interface=wlan0  driver=nl80211  ssid=RaspiBot  hw\_mode=g  channel=8  beacon\_int=100  auth\_algs=3  wpa=2  wpa\_passphrase=robotcuatao  wpa\_key\_mgmt=WPA-PSK  wpa\_pairwise=CCMP  wpa\_group\_rekey=600  wpa\_gmk\_rekey=86400  wmm\_enabled=1 | |

|  |
| --- |
| sudo nano /etc/dnsmasq.conf |
| Add:   |  | | --- | | interface=wlan0  no-hosts  dhcp-range=192.168.0.50,192.168.0.150,12h | |

|  |
| --- |
| sudo nano /etc/network/interfaces |
| |  | | --- | | auto lo  iface lo inet loopback  iface eth0 inet static  address 192.168.1.111  netmask 255.255.255.0  network 192.168.1.0  broadcast 192.168.1.255  gateway 192.168.1.1  allow-hotplug wlan0  iface wlan0 inet static  address 192.168.0.1  netmask 255.255.0.0  gateway 192.168.0.1 | |

|  |
| --- |
| sudo nano /etc/init.d/hostapd |
| Add:   |  | | --- | | #!/bin/sh  ### BEGIN INIT INFO  # Provides: hostapd  # Required-Start: $remote\_fs  # Required-Stop: $remote\_fs  # Should-Start: $network  # Should-Stop:  # Default-Start: 2 3 4 5  # Default-Stop: 0 1 6  # Short-Description: Advanced IEEE 802.11 management daemon  # Description: Userspace IEEE 802.11 AP and IEEE 802.1X/WPA/WPA2/EAP  # Authenticator  ### END INIT INFO  PATH=/sbin:/bin:/usr/sbin:/usr/bin  DAEMON\_SBIN=/usr/sbin/hostapd  DAEMON\_DEFS=/etc/default/hostapd  DAEMON\_CONF=  NAME=hostapd  DESC="advanced IEEE 802.11 management"  PIDFILE=/var/run/hostapd.pid  [ -x "$DAEMON\_SBIN" ] || exit 0  [ -s "$DAEMON\_DEFS" ] && . /etc/default/hostapd  [ -n "$DAEMON\_CONF" ] || exit 0  DAEMON\_OPTS="-B -P $PIDFILE $DAEMON\_OPTS $DAEMON\_CONF"  . /lib/lsb/init-functions  case "$1" in  start)  log\_daemon\_msg "Starting $DESC" "$NAME"  start-stop-daemon --start --oknodo --quiet --exec "$DAEMON\_SBIN" \  --pidfile "$PIDFILE" -- $DAEMON\_OPTS >/dev/null  log\_end\_msg "$?"  ifconfig wlan0 192.168.0.1  ;;  stop)  log\_daemon\_msg "Stopping $DESC" "$NAME"  start-stop-daemon --stop --oknodo --quiet --exec "$DAEMON\_SBIN" \  --pidfile "$PIDFILE"  log\_end\_msg "$?"  ;;  reload)  log\_daemon\_msg "Reloading $DESC" "$NAME"  start-stop-daemon --stop --signal HUP --exec "$DAEMON\_SBIN" \  --pidfile "$PIDFILE"  log\_end\_msg "$?"  ;;  restart|force-reload)  $0 stop  sleep 8  $0 start  ;;  status)  status\_of\_proc "$DAEMON\_SBIN" "$NAME"  exit $?  ;;  \*)  N=/etc/init.d/$NAME  echo "Usage: $N {start|stop|restart|force-reload|reload|status}" >&2  exit 1  ;;  esac  exit 0 | |

Startup Script

Create script in /etc/init.d:

|  |
| --- |
| sudo nano /etc/init.d/ [Script] |

Make script executable

|  |
| --- |
| sudo chmod 755 /etc/init.d/[Script] |

To register your script to be run at start-up and shutdown, run the following command:

|  |
| --- |
| sudo update-rc.d [Script] defaults |

To remove the script from start-up, run the following command:

|  |
| --- |
| sudo update-rc.d -f  [Script] remove |

WiringPi

If you do not have GIT installed, then under any of the Debian releases (e.g. Raspbian), you can install it with:

|  |
| --- |
| cd /home/pi/Setup/wiringPi/wiringPi/ |

To build/install there is a new simplified script:

|  |
| --- |
| sudo make install |

SimpleCV

Install the necessary dependancies:

|  |
| --- |
| sudo apt-get install ipython python-opencv python-scipy python-numpy python-setuptools python-pip -y |
| sudo pip install svgwrite |

SimpleCV should now be ready to install. Download SimpleCV from github and install from the source.

|  |
| --- |
| sudo pip install https://github.com/sightmachine/SimpleCV/zipball/master |

 UV4L driver

Install the necessary dependancies:

|  |
| --- |
| *wget****http://www.linux-projects.org/listing/uv4l\_repo/lrkey.asc****&& sudo apt-key add ./lrkey.asc* |

Add the to the file */etc/apt/sources.list*:

|  |  |
| --- | --- |
| *sudo nano /etc/apt/sources.list*   |  | | --- | | deb http://www.linux-projects.org/listing/uv4l\_repo/raspbian/ wheezy main | |

|  |
| --- |
| *sudo apt-get update* |
| *sudo apt-get install uv4l uv4l-raspicam -y* |
| *sudo apt-get install uv4l-raspicam-extras* |
| *sudo rpi-update* |
| *cd build* |

To terminate a running driver:

|  |
| --- |
| *pkill uv4l* |

 To load:

|  |
| --- |
| *uv4l --driver raspicam --auto-video\_nr --width 640 --height 480 --encoding jpeg* |
| *export LD\_PRELOAD=/usr/lib/uv4l/uv4lext/armv6l/libuv4lext.so* |

Userland Project

Install the necessary dependancies:

|  |
| --- |
| *sudo apt-get install cmake libopencv-dev -y* |

Place Raspberry Pi userland project in /home/pi/src/raspberrypi/userland

|  |
| --- |
| *mkdir -p /home/pi/src/raspberrypi* |
| *cd /home/pi/src/raspberrypi* |
| *git clone --depth 1 https://github.com/raspberrypi/userland.git* |

Build pre-required libraries

|  |
| --- |
| *make -C /opt/vc/src/hello\_pi/libs/vgfont* |

 Build project:

|  |
| --- |
| *mkdir userland/build* |
| *cd userland/build* |
| *cmake ../* |
| *make* |

 Serial Port

Disable Bootup Info:

|  |
| --- |
| *sudo* nano /boot/cmdline.txt |
| Delete RED part:   |  | | --- | | dwc\_otg.lpm\_enable=0 console=ttyAMA0,115200 kgdboc=ttyAMA0,115200 console=tty1 root=/dev/mmcblk0p2 rootfstype=ext4 elevator=deadline rootwait | |

Disable Bootup Info:

|  |
| --- |
| *sudo* nano /etc/inittab |
| Command last line:   |  | | --- | | 2:23:respawn:/sbin/getty -L ttyAMA0 115200 vt100 | |